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<p>(21) International Application Number: PCT/GB89/00914</p> <p>(22) International Filing Date: 10 August 1989 (10.08.89)</p> <p>(30) Priority data: 8818997.2 10 August 1988 (10.08.88) GB</p> <p>(71) Applicant (<i>for all designated States except US</i>): SMITH &amp; NEPHEW PLC [GB/GB]; 2 Temple Place, Victoria Embankment, London WC2R 3BP (GB).</p> <p>(72) Inventors; and</p> <p>(75) Inventors/Applicants (<i>for US only</i>) : RAWLINGS, David, Alan [GB/GB]; 8 Walden Road, Littlebury, Saffron Walden, Essex CB11 4TA (GB). WOOD, Barbara, Mary [GB/GB]; 3 William Cook Road, Ward End, Birmingham, West Midland B8 2HS (GB).</p> <p>(74) Agent: HOBBS, J., D.; Smith &amp; Nephew Research Ltd., Gilston Park, Harlow, Essex CM20 2RQ (GB).</p>		<p>(81) Designated States: AT (European patent), AU, BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB (European patent), IT (European patent), JP, LU (European patent), NL (European patent), SE (European patent), US.</p> <p><b>Published</b>  <i>With international search report.</i>  <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	
<p>(54) Title: SANITARY TOWEL PACKS</p>			
<p>(57) Abstract</p> <p>A packaged absorbent sanitary device (2) such as a pant liner comprising a folded form having an outwardly facing garment contacting adhesive layer (4) on one surface and a releasable protector (5) extending (6) over the adhesive layer and beyond at least one edge of the pad (2) wherein the pad comprises a unitary layer of an absorbent material and wherein extended regions of the protector are sealed together (8) to form the packaging. The absorbent material is preferably a layer of hydrophilic polymer foam or a non-woven fabric.</p>			

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SANITARY TOWEL PACKS

The present invention relates to packaged absorbent sanitary devices such as sanitary towel packs.

Sanitary towels are normally packaged in a bulk pack or in individual packs which may be part of a bulk pack. Conventional individual sanitary towel packs usually comprise stacks of towels and thus will have width and length dimensions which are similar to that of the individual sanitary towel within the pack. Such individual sanitary towel packs although suitable for storage and use at home have been found to be awkward and difficult to use and store with discretion outside the home.

In recent years individual sanitary towel packs have become available in which the sanitary towel is folded thereby making such packs more compact and discreet to store and use. Belgium Patent No. 889898 discloses individual sanitary towel packs in which the folded sanitary towel is packed within a separate container such as envelope or sachet. A packaged sanitary device has now been found which does not require a separate container.

A packaged absorbent sanitary device comprising a folded pad having an outwardly facing garment contacting adhesive layer on one surface and a releasable protector extending over the adhesive layer and beyond at least one edge of the pad wherein the pad comprises a unitary layer of an absorbent material and wherein extended regions of the protector are frangibly sealed together to form the packaging.

Suitable absorbent sanitary devices of the invention having a pad of a unitary layer of absorbent material include sanitary towels and lactation pads.

Particularly suitable sanitary towels with a pad of this type are known as pant liners. Pant liners have a relatively thin pads which can be discretely but comfortably worn between the skin and underclothing.

The absorbent pad of a device of the invention such as a sanitary towel is preferably in a compact folded form with body facing surface thereof facing inwards. In such a form the protector or a part thereof will be on the outer surface of the absorbent pad and will thereby form the outer part of the packaged device.

The use of the protector as the packaging for the device thus avoids the necessity of providing separate packaging container such as an envelope for the sanitary device. Such a packaged device of the invention therefore employs less material than prior art packs of sanitary pads and hence reduces the amount of material which has to be disposed of when the sanitary device is used.

The absorbent pad of the device which will, prior to folding, normally have a generally elongate, rectangular shape can conveniently be folded transversely about one or two fold lines to provide the device with a compact folded foam having two or three folded layers.

In favoured embodiments of the invention the absorbent pad is folded transversely about a single foldline into a compact form having two wings hinged about the foldline.

In alternative embodiments the two end portions of the absorbent pad are each folded transversely about a fold line towards the centre region of the towel so that the portions lies adjacent to each other and over an intermediate portion in a two layer construction or the wings and intermediate portion overlap each other

to form in a three layer construction.

In the device of the invention at least one extended portion or region of the protector can be attached to an adjacent extended portion or region of the protector to maintain the device in compact form prior to use. Such a portion or region can be a portion which extends beyond the ends and/or sides of the absorbent layer of the pad. In favoured embodiments of the invention the protector extends beyond at least two opposed edges of the absorbent layer. These opposed edges may be opposed longitudinal edges or opposed transverse edges or both such edges of the absorbent layer.

The attachment between adjacent extended portions or regions of the protector will conveniently be a frangible seal such as heat or adhesive seal and in particular a frangible seal which is openable for example by peeling or tearing to render the packaged device openable without recourse to scissors or other cutting implements. The seal can advantageously be a resealable seal such as a pressure sensitive adhesive seal to enable the sanitary device after use to be repackaged prior to disposal.

Suitable peelable, tearable or resealable seals

can be provided by conventional methods.

Portions or regions of the extended protector can be sealed to provide the outer part of the device with a number of different forms.

When the device comprises an absorbent pad which is folded transversely about a single fold line into two layers or wings the sealed protector can be in the form of a wrapper, a sachet with an open side or a closed envelope.

In one embodiment of this type the outer part of the sealed package is in the form of a wrapper formed by sealing together adjacent regions or portions of the protector which extend beyond the ends or transverse edges of the absorbent layer. The end portions of the protector are preferably frangibly sealed at their area of abutment with each other that is in a 'face to face' manner with a transverse seal located inwardly of the ends or edge the protector to provide a pair of 'handles' or tabs which can be grasped to peel or break the seal.

In a preferred embodiment of this type the outer part of the device is in the form of a sachet with an open side formed by sealing together adjacent side

portions of the protector which extend beyond the sides of the absorbent layer.

The seals at the side edge of the pack can conveniently be broken by gripping the unsealed end portions of the protectors on the open side of the pack.

In yet another embodiment of this type the outer part of the pack is in the form of an envelope formed by sealing together the adjacent end portions and adjacent side portions of the protector which extend respectively beyond the ends and sides of the absorbent layer. In such a pack the end portions of the protector can be sealed inwardly of the ends thereof to provide handles or tabs for peeling as hereinbefore mentioned.

In each of the embodiments described hereinabove, the peelable or breakable seal at adjacent side and/or end portions of the protector enables the pack to be opened to provide the sanitary towels in an unfolded form. The sanitary device can then be applied to a garment in a conventional manner after removal of the protector.

The protector used in these embodiments may comprise a single protector.

However, in yet a further embodiment in which the absorbent pad is folded transversely about a single fold line into two layers or wings, the sanitary device comprises a pair of protectors, one over each wing, which form the outer part of the device which are formed in the form of a wrapper formed by sealing together adjacent portions of each protector which extend beyond the ends and fold line of the sanitary towel.

Preferably the end portions of each protector which extend beyond the fold line are sealed with a peelable seal inwardly of the ends of each protector to provide a pair of handles or tabs. Such handles can be grasped to peel apart the seal and to remove the protectors. Such an embodiment of the invention can advantageously be applied to a garment during removal of the protectors.

In embodiments of the invention in which the two end portions of the absorbent pad are folded traversely towards the central region thereof to form a two or three layer construction, an end portion of the protector can conveniently overlap and be sealed to the back of another adjacent portion thereof to form a peelable seal.

In such embodiments the packaged device can be opened by peeling or breaking the seal and the sanitary device unfolded from its compact form into its normal planar form.

The sanitary device used in the invention will be suitably adapted for folding into a compact form. The absorbent pad of the device will therefore normally be relatively thin and flexible. The absorbent pad of the device can suitably have a thickness of 1 to 5mm and preferably have a thickness of 1 to 4mm.

Suitable devices can be selected from those used in sanitary towels for absorbing medium or low flow rates of a fluid exudate such as menses. Favoured sanitary towels of this type include pant liners which are normally used for absorbing low flow rates of menses and in particular pant liners having a pad containing a highly absorbent polymer common known as "Superabsorbers".

The absorbent pad used in the invention comprises a unitary layer of absorbent material.

A unitary layer as used herein is a layer of unified material such as bonded fibres or a layer of

coherent material such as foam. A unitary absorbent layer of the pad used in the invention therefore does not require a wrapper or envelope to hold the absorbent material in or maintain the shape of the pad.

Suitable absorbent layers for the pad used in the invention include those made of absorbent non-woven fabric and absorbent foam such as hydrophilic polymer foam.

Suitable non-woven fabrics can comprise cellulosic fibres such as cotton or viscose rayon fibres and mixtures thereof with other fibres including heat softening fibres such as polyolefine or multicomponent fibres to enable the fabric to be thermally bonded.

Suitable absorbent layers comprising thermally bonded absorbent non-woven fabric layers are disclosed in United Kingdom Application No. 2211418.

Suitable hydrophilic polymer foams include hydrophilic polyurethane foams. Suitable hydrophilic polyurethane foams for use in sanitary towels are disclosed in United States Patent Nos. 4023570 and 4023571 and United Kingdom Application No. 2188055.

The absorbent layer can comprise a superabsorber to increase the absorbent capacity of the layer.

In the sanitary device of the invention the pad will preferably comprise a liquid impermeable barrier layer between the garment facing surface of the absorbent layer and the adhesive. Suitable barrier layers include thin films of polymers such as polyethylene or ethylene vinyl acetate copolymer. The barrier film can aptly be bonded by adhesive or heat sealing to the garment facing side of the absorbent layer.

Similarly the pad can also comprise a cover layer of liquid pervious material over the body facing surface of the absorbent layer. Such a cover layer can be a non-woven fabric or net conventional used in the sanitary pad art. Preferably the liquid impervious layer and/or the cover layer is bonded to the surface or respective surfaces of the absorbent layer.

The sanitary device of the invention has adhesive on the garment facing side of the absorbent layer and is preferably carried by a barrier film. The adhesive can extend over all or part of the garment facing side of the absorbent layer. Preferably the adhesive extends over part of this side of the absorbent layer. Such an

adhesive can aptly be a single strip as disclosed in the hereinabove mentioned United States Patents or a pair of adhesive strips as disclosed in United Kingdom Patent Nos. 1349962 and 2165158A. The adhesive will normally be a pressure sensitive adhesive of the type conventionally used for adhesive sanitary towels.

The protector or protectors used in the invention will preferably cover the whole of the garment facing surface of the towel or the absorbent layer. Suitable materials for use as protectors can include any of the materials normally used as release protectors over the adhesive on sanitary towels. It is preferred, however, that the protector comprises a film or coating of a thermoplastic polymer such as polyethylene or polypropylene to render the protector heat sealable.

The packaged absorbent sanitary device of the invention can be formed as a folding a sanitary absorbent device, comprising a pad having a unitary layer of absorbent material and an adhesive on the garment facing side thereof and a protector covering the adhesive and so that the protector is on the outside thereof and attaching together adjacent portions of the protector to maintain the sanitary device in a folded form.

The rolling or folding of a sanitary device can be achieved using conventional rolling or folding machines used in textile packaging art. The attaching of adjacent portions of the portions of the protector can be carried out using suitable bonding means such as heat sealing or adhesive sealing means. Such seals, however a preferably peelable to facilitate unwrapping the sanitary device prior to use.

Alternatively adjacent portions of the protector can be attached by application of an adhesive tape.

The invention will now be illustrated with reference to the following drawings in which

Fig. 1 is a cross section of one embodiment of the invention

Fig. 2 is a plan view of another embodiment of the invention similar to that of Fig. 1

Fig. 3 is a plan view of a further embodiment of the invention similar to that of both figs 1 and 2

Fig 4 is a cross section of yet a further embodiment of the invention.

Fig. 1 shows a sanitary towel pack 1 of the invention in which the sanitary towel comprises a unitary absorbent layer 2 of for example foam or non-woven fabric, a liquid impermeable layer 3 carrying an adhesive 4 on its garment facing side 5 and a single protector 5 covering adhesive 4. Protector 5 has portions 6 which extend beyond the ends of absorbent layer 2. The sanitary towel within pack 1 is folded about a single fold line 7 so that protector 6 is on the outside of the towel and portions 6 are sealed 'face to face' at seal 8 which is inwardly of the ends of the protector to provide handles 9. Protector 6 as shown in Fig. 1 is in the form of wrapper around outside of pack 1.

Fig. 2 shows a sanitary towel pack 10 similar to that shown in Fig. 1, except that protector 5 has extended side portions 11 (in place of extended end portions 6) which are sealed together at seals 12. Protector 5 as shown in Fig. 2 is in the form of an open sachet around the outside of the pack.

Fig. 3 shows a sanitary towel pack 13 similar to both the packs shown in Figs. 1 and 2 in which both extended end portions 6 and side portions 11 of the protector are sealed at seals 8 and 12 respectively. Protector 5 as shown in Fig. 3 is in the form of a

sealed envelope around the outside of the pack.

Fig. 4 shows a sanitary towel pack 14 in which the sanitary towel has a pair of protectors 15 and 16 covering adhesive 4. Protector 15 and 16 each have end portions 17 which extend beyond the ends of the towel and end portions 18 which extend beyond the fold line 7 in the towel. End portions 17 and sealed at 19 and end portions 18 are sealed at 20. Protectors 15 and 16 shown in Fig. 4 are in the form of a wrapper around the outside of pack 14.

In each of the sanitary towels packs 1, 10, 13 and 14 the sealed protector forms the outside of the pack in the form of a wrapper, sachet or envelope.

Such a pack thus advantageously eliminates the need to provide a container for the sanitary towel. Furthermore, the sanitary towel within any of these packs has a relatively thin absorbent layer folded in a compact form which is ideal for discreet use in a public place. In addition the use of a unitary absorbent layer avoids the problems of creasing and uneven distribution absorbent which can occur with wrapped or enveloped absorbent layers.

Seals 8 and 12 of Packs 1, 10 and 13 can

advantageously be peelable seals to enable the sanitary towels within these packs to be unpacked in a flat form. The sanitary towels from these packs can then be applied to a garment after removal of the protector in a normal fashion.

Seal 20 of pack 14 can also be a peelable seal. Such a peelable seal can advantageously allow the sanitary towel of pack 14 to be applied to a during removal of protectors 15 and 16 after peeling open seal 20.

CLAIMS

1. A packaged absorbent sanitary device comprising a folded pad having an outwardly facing garment contacting adhesive layer on one surface and a releasable protector extending over the adhesive layer and beyond at least one edge of the pad wherein the pad comprises a unitary layer of an absorbent material and wherein extended regions of the protector are frangibly sealed together to form the packaging.
2. A device as claimed in claim 1 in which the absorbent material is a layer of hydrophilic polymer foam or a non-woven fabric.
3. A device as claimed in claim 1 or claim 2 in which the absorbent material comprises a superabsorber.
4. A device as claimed in any one of claims 1 to 3 in which the pad comprises a cover layer of a liquid pervious material over the body facing surface of the absorbent layer.
5. A device as claimed in any one of claims 1 to 4 in which the pad comprises a liquid impervious layer between the garment facing surface of the absorbent layer and the adhesive.

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6. A device as claimed in any one of the preceding claims in which the pad is generally of elongate shape and is folded about a transverse fold line.
7. A device as claimed in any one of the preceding claims in which the protector extends beyond at least two opposed edges of the absorbent layer.
8. A device as claimed in claim 6 or claim 7 wherein the protector extends beyond the opposed longitudinal edges of the absorbent layer.
9. A device as claimed in any one of claims 6 to 8 wherein the protector extends beyond the opposed transverse edges of the absorbent layer.
10. A device as claimed in any preceding claim in which extended regions of the protector are frangibly sealed at their area of abutment with each other and inwardly of the edge of protector to form a pair of tabs for grasping.
11. A device as claimed in any one of the preceding claims wherein all the extended regions are frangibly sealed at their area of abutment with each other to provide a sealed package containing a pad.

12. A device as claimed in any one of claims 7 to 9  
in which the ends edges extend beyond the sealing point  
to provide a tab for grasping the edge.

1/1

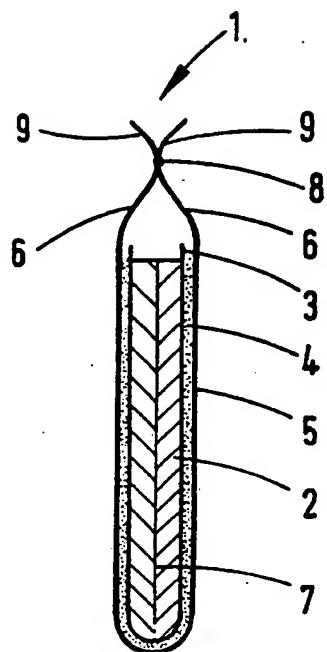


Fig.1

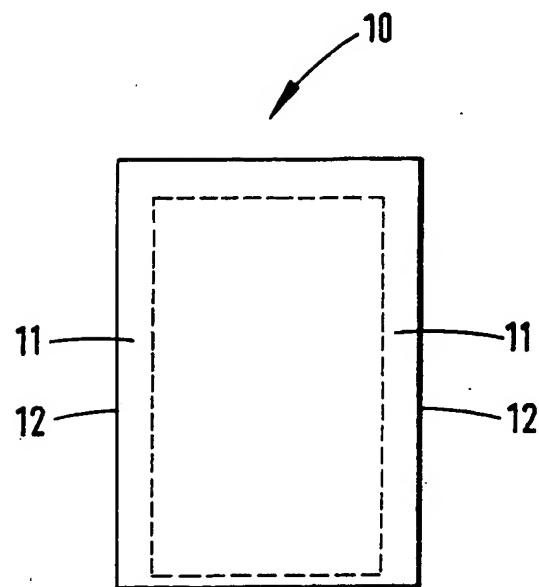


Fig.2

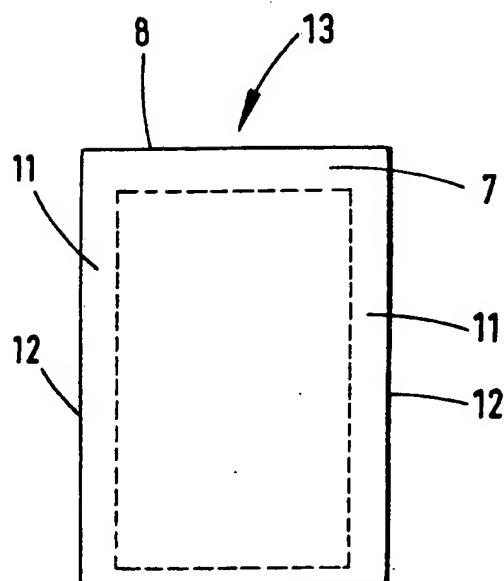


Fig.3

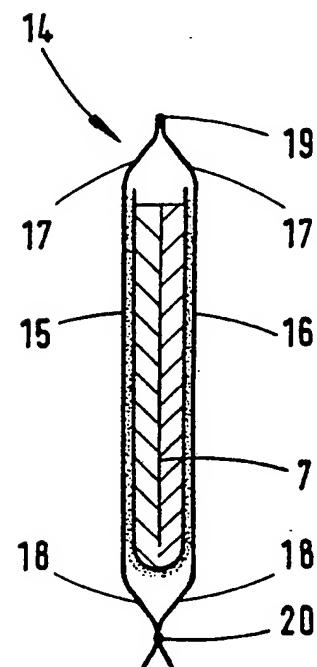


Fig.4

# INTERNATIONAL SEARCH REPORT

International Application No. PCT/GB 89/00914

## I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)

According to International Patent Classification (IPC) or to both National Classification and IPC

**IPC<sup>5</sup>: A 61 F 13/15**

## II. FIELDS SEARCHED

Classification System	Minimum Documentation Searched <sup>7</sup>	
	Classification Symbols	
IPC <sup>5</sup>	A 61 F	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched <sup>8</sup>		

## III. DOCUMENTS CONSIDERED TO BE RELEVANT\*

Category <sup>9</sup>	Citation of Document, <sup>10</sup> with indication, where appropriate, of the relevant passages <sup>11</sup>	Relevant to Claim No. <sup>12</sup>
X	FR, A, 2494226 (UNI-CHARM CORP.) 21 May 1982, see figures 6,7; page 2, lines 17-25	1
Y	DE, A, 3702574 (PHILIPS) 3 September 1987, see figures 2,3; abstract	3
X	US, A, 3973567 (SRINIVASAN) 10 August 1976, see figures 7-14; column 6, lines 62-68; column 6, lines 32-36; column 4, lines 1-54	1,2,4-12
Y	--	3
A	FR, A, 2374890 (L'OREAL) 21 July 1978 see the whole document	1-12
A	GB, A, 2141396 (MOLNLYCKE AB) 19 December 1984, see abstract	1-12
A	US, A, 4265234 (SCHAAR) 5 May 1981, see abstract	1-12
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\* Special categories of cited documents: <sup>10</sup>

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"A" document member of the same patent family

## IV. CERTIFICATION

Date of the Actual Completion of the International Search

6th December 1989

Date of Mailing of this International Search Report

02.02.89

International Searching Authority

EUROPEAN PATENT OFFICE

Signature of Authorized Officer

C. D. v. d. VLIET

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	US, A, 4304333 (KOZLOW) 8 December 1981, see abstract	1-12
A	BE, A, 884898 (UNILEVER) 23 February 1981, see figures 4,2 (cited in the application)	1-12

**ANNEX TO THE INTERNATIONAL SEARCH REPORT  
ON INTERNATIONAL PATENT APPLICATION NO.**

GB 8900914  
SA 30757

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 26/01/90. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
FR-A- 2494226	21-05-82	JP-A-	57096908	16-06-82
DE-A- 3702574	03-09-87	US-A-	4713816	15-12-87
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		CA-A-	1043503	05-12-78
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		US-A-	4564108	14-01-86
US-A- 4265234	05-05-81	CA-A-	1163242	06-03-84
US-A- 4304333	08-12-81	None		
BE-A- 884898	23-02-81	None		